Algebraic Properties of Logarithms and an Estimate

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Abstract: $x^x = 100$ is estimated. That is, through a general algebraic assumption with the ratio of logs of another known function.

We understand through algebra that $x^2 = 100$. We use functional transpositions of logarithms to estimate $x^x = 100$. That is through the analytical properties of $x^2 = 100$.

We make our first estimate by organizing the ratio of logs. Then we address the plus and minus alternating function.

$$x^x = 100 \rightarrow \frac{2log(200)}{log(20)} + \frac{log(2)}{5} \approx 3.59744957281 \approx x$$

$$\rightarrow 3.59744957281^{3.59744957281} \approx 100.037527602$$

Closing

$$\frac{2log(200)}{log(20)} + \frac{log(2)}{5} - \frac{log(2)}{1000} \approx 3.59714854282 \approx x$$

$$\frac{2log(200)}{log(20)} + \frac{log(2)}{5} - \frac{log(2)}{1000} \rightarrow 3.59714854282^{3.59714854282} \approx 99.96888504733793$$

Check logic

$$\frac{2log(200)}{log(20)} + \frac{log(2)}{5} - \frac{log(2)}{1000} + \frac{log(2)}{200000} \approx 3.59715004797 \approx x$$

$$\frac{2log(200)}{log(20)} + \frac{log(2)}{5} - \frac{log(2)}{1000} + \frac{log(2)}{200000} \rightarrow 3.59715004797^{3.59715004797} \approx 99.9692281367$$

Reform composition

$$\frac{2log(200)}{log(20)} + \frac{log(2)}{5} - \frac{log(2)}{5000} + \frac{log(2)}{50000} \approx 3.59739538741 \approx x$$

$$\frac{2log(200)}{log(20)} + \frac{log(2)}{5} - \frac{log(2)}{5000} + \frac{log(2)}{50000} \rightarrow 3.59739538741^{3.59739538741} \approx 100.025168279$$

$$\frac{2log(200)}{log(20)} + \frac{log(2)}{5} - \frac{log(2)}{5000} + \frac{log(2)}{50000} - \frac{log(2)}{2000} \approx 3.59724487242 \approx x$$

$$\ldots \rightarrow 3.59724487242^{3.59724487242} \approx 99.9908452648$$

$$\frac{2log(200)}{log(20)} + \frac{log(2)}{5} - \frac{log(2)}{5000} + \frac{log(2)}{50000} - \frac{log(2)}{2000} + \frac{2log(2)}{20000} \approx 3.59727497542 \approx x$$

$$\ldots \rightarrow 3.59727497542^{3.59727497542} \approx 99.9977088755$$

$x^x \approx 100$, almost by .0033